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UNION OF SOVIET  
SOCIALIST  
REPUBLICS

(19) SU (11) 1768745 A1  
(51) 5 E 21 B 10/16

USSR STATE COMMITTEE  
ON INVENTIONS AND DISCOVERIES

## DESCRIPTION OF INVENTION

ATTACHMENT TO CERTIFICATE OF AUTHORSHIP

[stamp: illegible]

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(21) 4647027/03

(22) Sept. 16, 1988

(46) Oct. 15, 1992 Bull. No. 38

(71) Special Design Bureau for Drill Bits of the  
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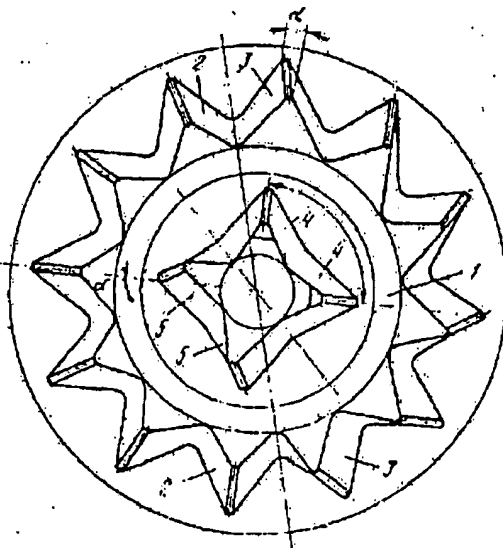
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(56) USSR Certificate of Authorship  
No. 1441051, cl. E 21 B 10/16, 1987.

(54) DRILL BIT CUTTER

(57) The invention relates to rock cutting tools. The  
purpose is to increase the mechanical speed of

drilling due to high intensity of destruction of the  
rod per cutter revolution. The cutter (1) of the drill  
bit includes rows with groups of milled teeth (2, 3,  
4, and 5) that are oriented in various ways with  
respect to the cutter. The teeth in one of the groups  
(3) are made with an angle of inclination of 15–75  
to the cutter on 1/2 to 2/3 of the length of the  
circular row. The teeth of the other group (2) are  
oriented along the cutter. In the overlap of the  
cutters on the face, the shorter teeth (2 and 4) create  
maximum specific pressure on the rock, rolling the  
rod, and teeth (3 and 5) accelerate the destruction of  
the cusps of the rod. 1 ill.



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The invention relates to field of rock cutting tools, and more specifically, to cutting-type drilling bits, primarily with milled hardware.

There are three-cutter bits, the cutters of which have milled teeth. The teeth in the entire circular row are oriented along the cutter.

There are three-cutter bits, the cutters of which have milled teeth. The teeth along the entire circular row are located at an angle to the cutter.

There are three-cutter bits, the cutters of which have two groups of teeth with a constant orientation for each group but with various intervals within each group.

The drawback of such a design of the cutter is that this orientation of teeth in both groups prevents the orientation of at least a portion of the teeth along the cutter, which in identical conditions of drilling creates maximum specific pressure on the rock under the tooth.

The purpose of the invention is to increase the mechanical speed of drilling due to high intensity of destruction of the rod per revolution of the cutter.

This purpose is achieved by the fact that in the drill bit cutter containing rows with groups of teeth at various orientations with respect to the cutter, the teeth in one of the groups are placed at an angle of 15–75 to the cutter on 1/2 to 2/3 of the length of the row, and the teeth in the other group are

oriented along the cutter.

The invention is illustrated by a drawing showing the cutter of the drill bit.

The cutter (1) of the drill bit includes groups of milled teeth (2, 3, 4, and 5) at various orientations with respect to the cutter. The teeth in one of the groups (3) are placed at an angle of inclination  $\alpha = 15-75$  to the cutter on 1/2 to 2/3 of the length of the circular row. The teeth in the other group (2) are oriented along the cutter.

Similarly, the teeth in group (5) are placed at an angle of inclination  $\alpha = 15-75$ , and the teeth in group (4) are oriented along the cutter in the upper row.

In the overlap of the cutters on the face, the shorter teeth (2) and (4), oriented along the cutter, create maximum specific pressure on the rock, rolling the rod, and teeth (3) and (5), oriented at the angle  $\alpha$ , accelerate the destruction of the cusps of the rod.

#### Formula of the Invention

A drill bit cutter containing rows with groups of teeth at various orientations to the cutter on half of the row, distinguished by the fact that, in order to increase the mechanical speed of drilling due to greater intensity of destruction of the rod per revolution of the cutter, the teeth in one of the groups are placed at a 15–75 angle to the cutter on 1/2 to 1/3 of the length of the row, and the teeth of the other group are oriented along the cutter.